LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Éducation nationale,
de l'Enfance et de la Jeunesse

Enseignement secondaire		
Classes internationales		
	Régime anglophone	
Biologie		
Programme		
6IEC		

Leçons hebdomadaires: 2
Langue véhiculaire: anglais
Nombre minimal de devoirs par trimestre : 2

Manuels scolaires : livre de 6ième + livre de 4ième

Theory

	Topic	Contents
1	**Plants and their reproduction**	• Recall how organisms are classified • Interpret scientific organism names • Explain the importance of biodiversity • Explain the differences between sexual and asexual reproduction • Give examples of asexual reproduction in plants • Explain characteristics of offspring produced by sexual and asexual reproduction • Describe the general structure of flowering plants • Explain how the structures of flowers and pollen allow pollination by animals or wind • Explain how plants ensure cross-pollination • Describe how pollination leads to fertilization • Describe the formation of seeds and fruits • Explain the functions of seeds and fruits • Describe what happens in germination • Explain why seeds and plants need certain resources • Describe how organisms are interdependent - coevolution

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2	**Classification**	• Distinguish different <u>invertebrate groups</u> (insects, arachnids, molluscs, annelids, crustaceans) and name their characteristic features • Specify anatomy, physiology and the way of living of at least one <u>representative of the insects and molluscs</u> Use a dichotomous key
3	**Food and nutrition**	• Distinguish the different types of nutrients and their corresponding functions in our body • Describe the impact of physical activity, age and gender on energy needs • Describe the benefits of a balanced diet • Explain how different types of malnutrition are caused and their effects • Name the parts of the digestive system and their functions • Explain why enzymes and bacteria are useful for digestion • Explain how diffusion enables absorption by the small intestine
		Applications: *- Interpret nutrition information labels* *-Importance of surface area in digestion and absorption*
4	**Breathing and respiration**	• Explain what happens in aerobic respiration • Explain how to detect aerobic respiration (limewater, hydrogen carbonate indicator) • Describe the anatomy of the human respiratory system • Describe how gas exchange occurs in different organisms • Describe the functions of the organs in the gas exchange system • Explain how the structure of the lungs allows efficient gas exchange • Describe the effects of exercise on ventilation and heart beat rates • Describe the transport of oxygen and waste products in the blood • Describe the causes and explain the effects of reduced oxygen supply on the body
		Application: Cause and effect of lung cancer

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General skills:

- Accuracy and estimates
- Means and ranges

Practical Work - examples

Topic	Contents
Quadrat sampling	• Use the quadrat method to estimate and compare populations
Flower and pollen	• Produce a diagram of a flower • Observe pollen and honey under the microscope
Project on invertebrates	• Research on needs of land snail • Set up of a species appropriate terrarium
Leaf litter	• Explore living organisms in leaf litter
Experimental design	• Investigation of a factor affecting woodlice behaviour (light, temperature, humidity) • Investigation of factors affecting seed germination
Invertebrate dissection	e.g. • Sepia/mussel • Honey bee / lobster
Insect development	• Mealworm beetle (diary of development)
Gas exchange	• Measure lung volumes • Compare ventilation rates before and after exercise
Aerobic respiration	• Identify products of aerobic respiration
Nutrition	• Construct a food pyramid
Digestion	• Investigate the effect of amylase on starch digestion

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